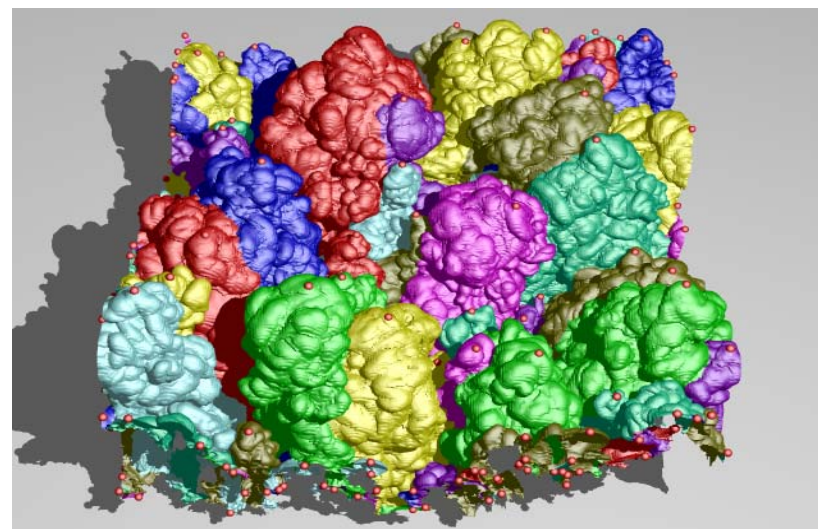
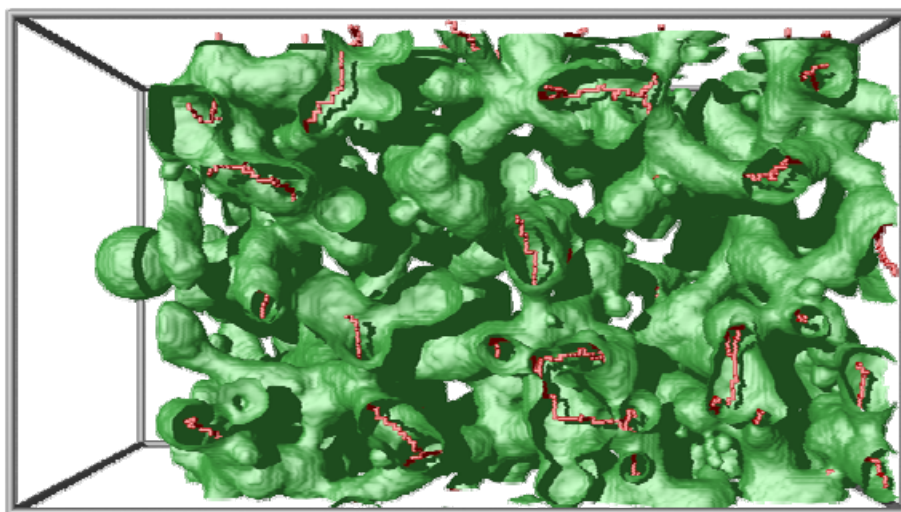




# VACET Data Analytics at LLNL



**CASC**

Valerio Pascucci  
**LLNL, UC Davis**



This work was performed under the auspices of the U.S. Department of Energy by the University of California, Lawrence Livermore National Laboratory under Contract No. W-7405-Eng-48. UCRL-PRES-200743

VP 1



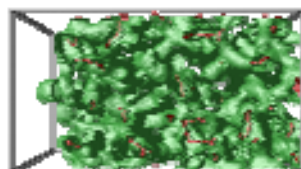
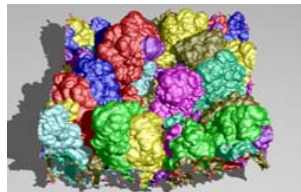
- **LLNL team leader:**
  - Valerio Pascucci
- **Chef software architect:**
  - Hank Childs
- **Team members and contributors:**
  - Brad Whitlock
  - Kathleen Bonnell
  - Tom Treadway
  - Peer-Timo Bremer
  - Daniel Laney
- Peter Lindstrom
- Mark Duchaneau
- **Postdocs:**
  - Ajith Mascarenhas
  - Ming Jiang
- **Students:**
  - Janine Bennett
  - Atilla Gyulassy
  - Issam Safa
  - Garrett Aldrich
  - Singh Shantanu
  - Min Chen



- Basic research: IEEE VIS (4 LLNL papers in 2007), ACM SIGGRAPH, IEEE TVCG, CAGD, Pacific Graphics, Comp. Geom. Theory and Apps ....

- Deployment: VisIT  
ViSUS & other streaming techniques  
Topological Analysis

- Mission Focus:



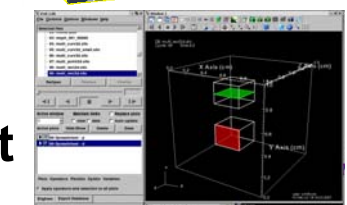
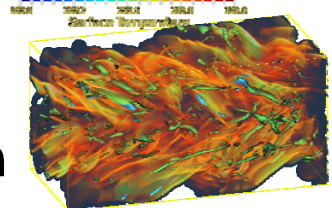
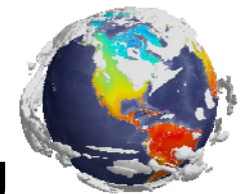
Climate modeling

Hydrodynamic instabilities

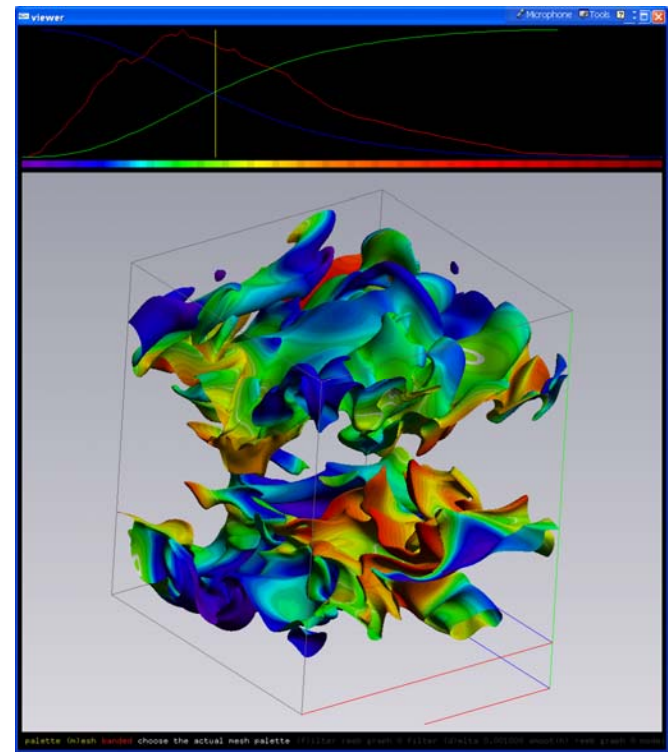
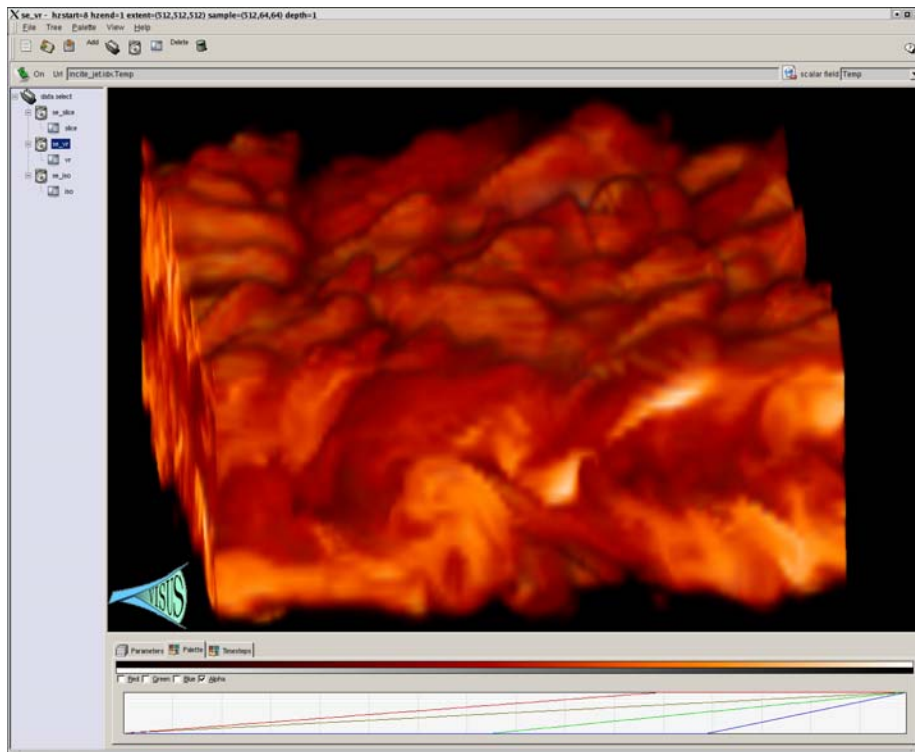
Combustion

Material science

APDEC Support

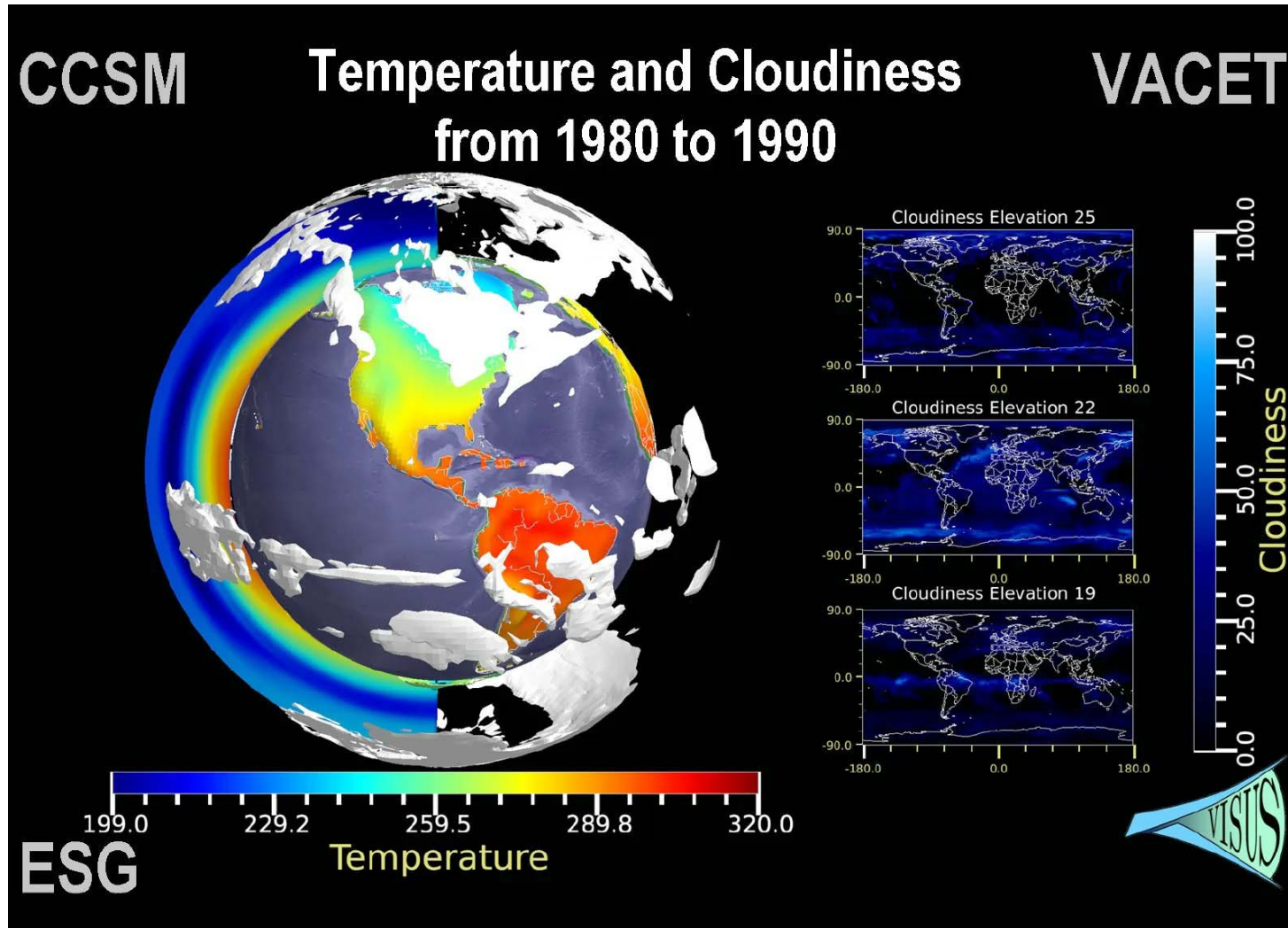


# We Are Deploying the ViSUS Framework for Visualization of Combustion Simulations





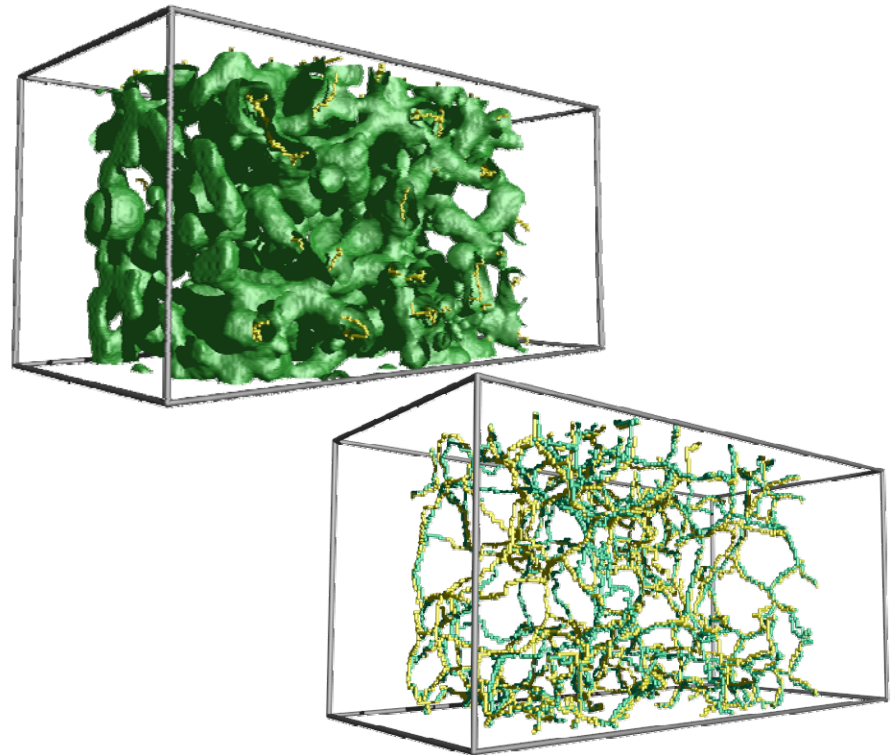
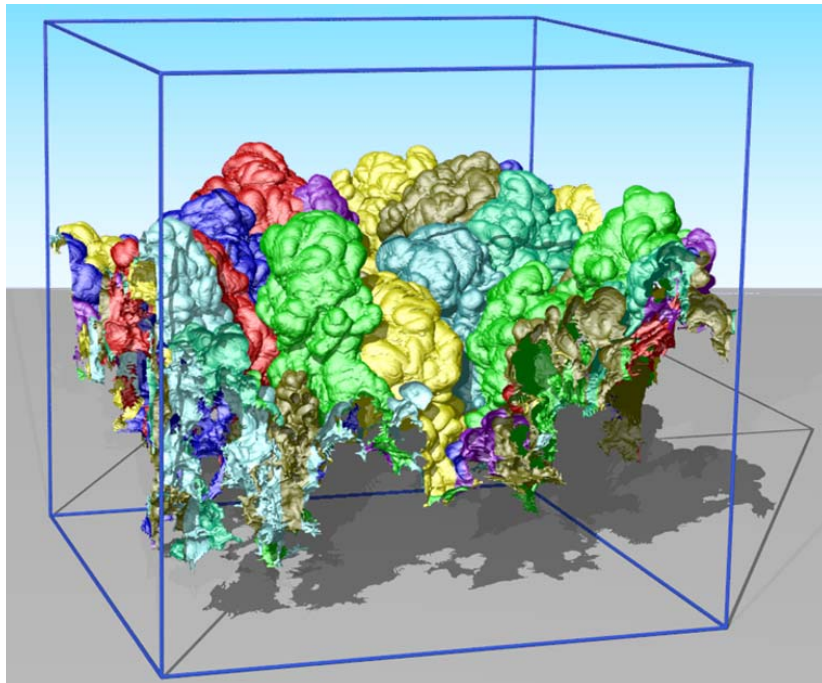
# We Extend ViSUS with a Python Layer for Presentation of Climate Modeling Data



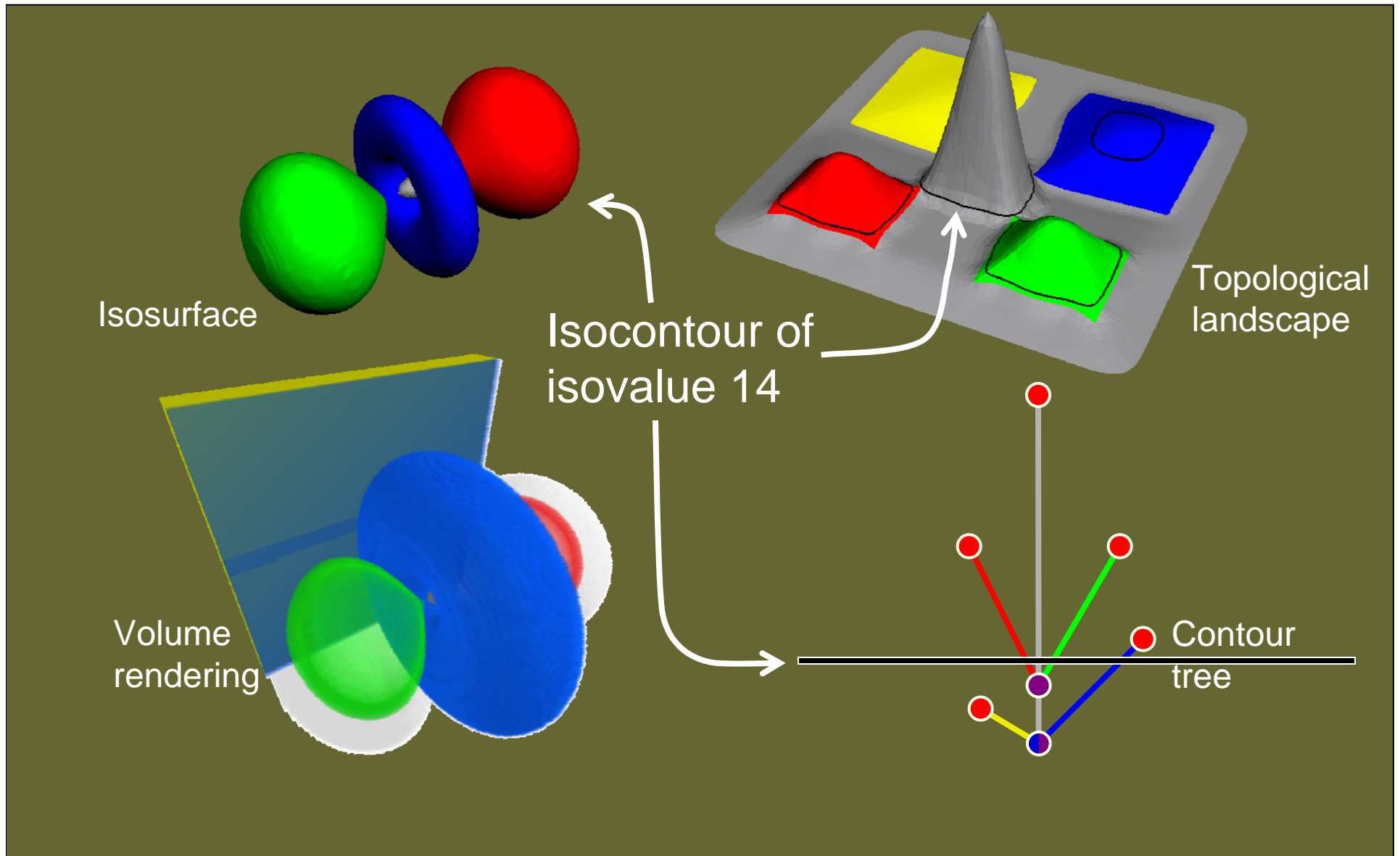
# We Have Complete Two Analyses of Large Scale Scientific Simulations

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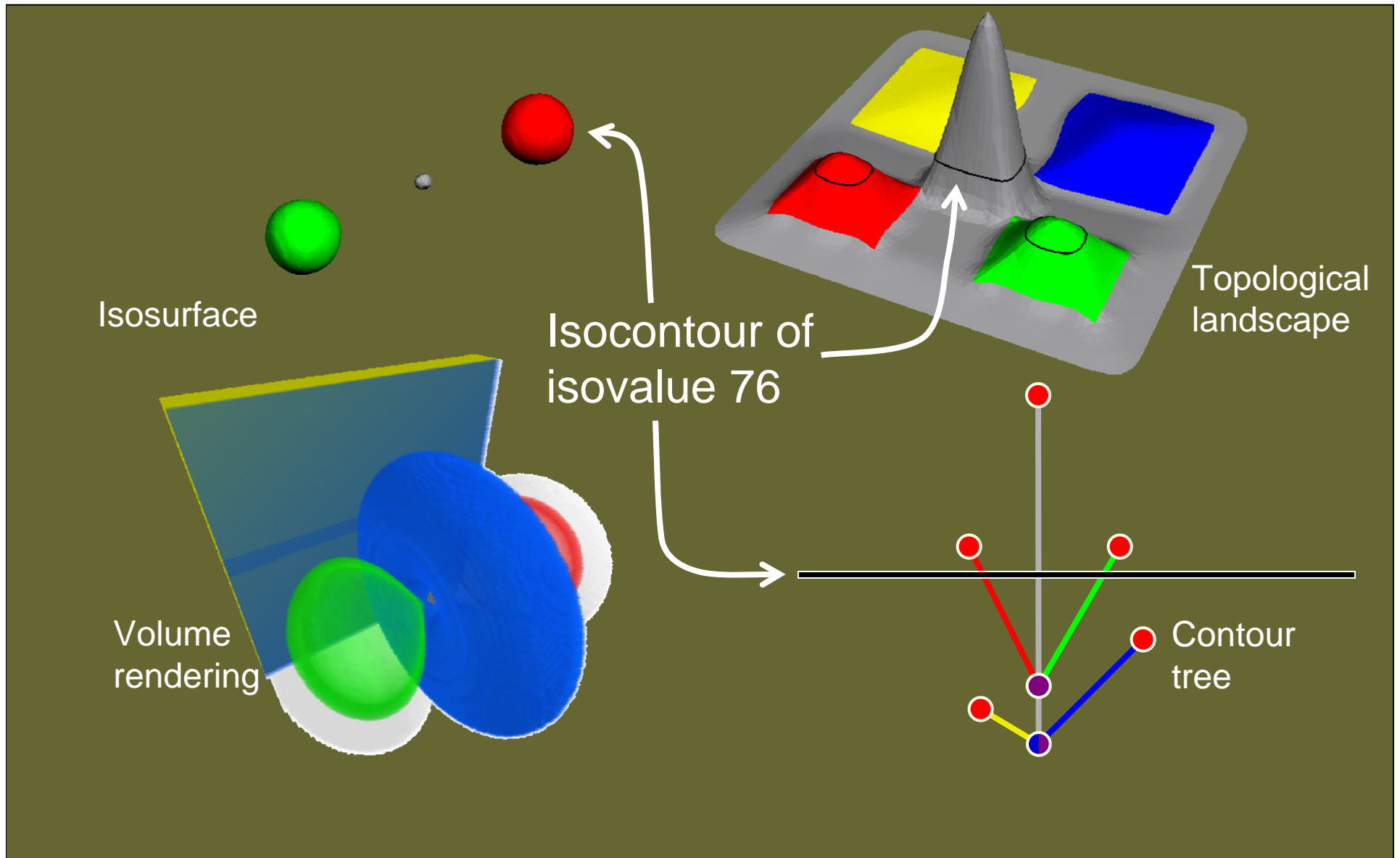
- We coauthored journal papers with the application scientists



# We are Developing new Concepts for Topological and User Interfaces



# We are Developing new Concepts for Topological and User Interfaces

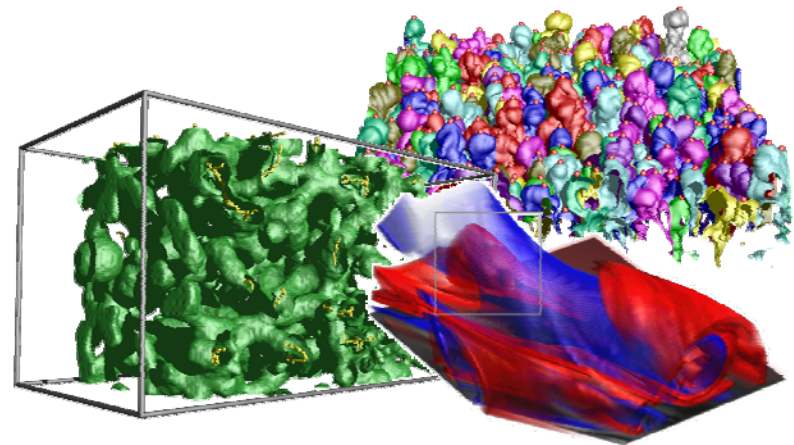




# We are Engaging the Community With a Number of Outreach Activities

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- **Eurographics/IEEE-VGTC Symposium on Volume Graphics 2008**  
**Los Angeles, CA**  
**August 10-11, 2008**
- **TopoInVis 2009:**  
**Topological Methods in Data Analysis and Visualization**  
**Salt Lake City, Utah,**  
**February 22-23, 2009.**



# **We Are Balancing new Research with Deployment and User Support**

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- **The VACET model is working:**
  - **Collaboration among the institutions**
  - **Deployment of tools**
  - **Users are directly engaged in the effort**
  - **Large number of publications**
  - **Outreach activities**
- **Challenges:**
  - **Maintain the momentum**
  - **LLNL is going through a restructuring phase**
  - **We need to leverage new resources for basic research**

# UCRL-VG-200743

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## Thank You!

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